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acters may be calumniated, their honour laid in the dust, their souls may be saddened into melancholy, by the terror-breathing denunciations of the fanatic. Such misfortunes may be the sad source of insanity, deplorable as that which they now deride; and by misfortunes such as these, the insanity they deride was probably occasioned.

But in persons more advanced in life, it is peculiarly out of character to be careless of the wild wanderer, and every act of unkindness he receives from them, must meet our decided abhorrence. Perhaps, while they bolt their door on him, a forlorn pair, whose parental feelings are at least as strong as theirs are disconsolately wondering, whether he shelters on straw and sack-cloth, or traverses the lonely mountain. Perhaps an affectionate wife ponders in solitude on the comeliness of the person they inhumanly disfigure with stripes; while her children tell their play-mates, how their father became crazed, stole from home, and has hitherto eluded the most diligent search. As old age approaches, the understanding will become weak, and the memory irretentive; and can they who permit their children to insult the insanity of a stranger, expect that they will show much respect to the dotage of a parent?

An ancient writer has observed, that, "*oppression* makes a wise man mad;" and had he said that *abuse* has the same tendency, the observation would have been equally true. Had the author of the divine aphorism just now quoted, been insulted and wronged in the manner that the insane are, in almost every village, I question if all his wisdom could have withheld him from the phrenzy of desperation. It is strange that people who are anxious to have them clothed and sheltered, should think so little of amusing themselves by provoking them to anger; never imagining that such provocations frequently repeated, render almost impossible that recovery they so devoutly wish. It is likely they do so, either through a desire of triumphing in the superiority of their own understandings, or from a supposition that the objects with whom they sport are ignorant of the treatment they re-

ceive; but that it makes a deep impression on their minds is apparent from the circumstantial account which in their lucid intervals they can give of it. Indeed, a law that by the severity of its penalties, would restrain the populace from irritating the insane by insult, would be as salutary as that which prevents them from injuring the persons and properties of their wiser fellow-creatures.

For my own part, I have always looked upon such people as the most pitiable of all earthly objects; though it be difficult enough to attend, with gravity, to their wild witticisms, and ridiculous reveries; I have always checked myself whenever I happened to smile or laugh, in the soul-saddening presence of such uncommon misery. Alas! what are the unreal personages with whom they suppose themselves surrounded, and the mock-majesty with which they invest themselves, but the wild phantoms of imagination, hovering round the benighted ruins of intellect, once bright and glorious? The mendicant who cannot now tell me his name, had perhaps transcribed the quintessence of volumes on the tablet of his memory; and he who cannot now write a legible word might have been once a man of erudition, who at college bore the prize from every competitor. When I hear boobies raise the hue-and-cry after an unfortunate fugitive, I glow with indignation, conscious that they would have given Swift, Lee and Collius, similar abuse; and when I see a son of sympathy comforting and consoling him, I please myself with the idea that it was in this manner Sterne treated the poor distracted Maria.

O.

To the Editor of the Belfast Magazine.

SPRING WHEAT.

Triticum Aestivum.

THE following account of Spring Wheat, communicated to the Board of Agriculture in London, by Sir Joseph Banks, is recommended to the attention of farmers. It is, however, by no means designed that the exertions of the cultivator should in the least degree be relaxed in raising wheat by autumnal sowings; a practice that

long experience has proved to be most convenient and advantageous to husbandmen; yet, as adverse seasons sometimes occur, whereby considerable tracts of arable land still remain unsown, the substitution of spring wheat appears to be an object of great importance to the public.

Real spring wheat, the *Triticum Aestivum*, or summer wheat of the botanists, is a grain too tender to bear the frosts of the winter, but as quick in progress, from its first shoot to ripeness, as barley, oats, or any other spring corn.

It is well known on all parts of the Continent, and much used in France, where it is called *Ble de Mars*, from the season in which it is usually sown; and in some provinces *Bleds Tremois*, from the time it takes between seed-time and harvest; in Spain it is called *Trigo de Marzo*; in Portuguese *Trigo Tremois*; and in German, *Sommer Waitzen*; all which names mark distinctly the difference between this and winter corn.

It does not appear from the older books on husbandry, that it was at any former period much cultivated in England; the more modern ones are in general silent on the subject of it; they mention, indeed, under the name of spring wheat, every kind of winter wheat, which will ripen when sown after turnips in February. This is probably the reason, why the real spring wheat has been so little known; agriculturists in general, conceiving themselves to be actually in the habit of growing spring wheat, when in reality, they were substituting winter wheat in its place, have been little inclined to inquire into the properties of the real spring wheat, when they had an opportunity of so doing.

In the lower parts of Lincolnshire, where the land is most valuable, and consequently the most subject to mildew, spring wheat has been long known, and it is now cultivated to a great extent. Mr. Sers, of Gedney, near Spalding, has claimed a premium of the Board of Agriculture for the largest quantity of land sown with spring wheat, in 1805; his quantity is two hundred and forty-one acres (one hundred and forty-nine, Irish) and there is no reason to suppose, that he added a single acre to his crop on account of

the Board's offer. He is a man, who, by his skill and talents in agriculture alone, has raised himself to opulence, and possesses a considerable landed estate, for which he is certainly in part indebted to the free culture in spring wheat during the last thirty years.

Mr. Sers sows spring wheat from the 25th of March till the 1st week in May; for a full crop he sows fourteen pecks on an acre (about twenty-four stone to the Irish acre) and expects to reap four quarters (eleven barrels, two stone, and two pound, to the Irish acre) if he sows grass seeds (clover, rye grass, &c.) under it, which is very generally practised, he sows nine pecks (fifteen stone, and a half, to the Irish acre) and expects three quarters, (eight barrels, six stone and a half) in return. He finds it thrive nearly equally well on his stiff and his light land; and has found it by experience, to be exempt from the mildew or blight, and free from all damage of the grub or wire worm.

The farmers in South Holland, where Mr. Sers resides, uniformly declare that they have been many years ago compelled, by frequent attacks of the mildew or blight, to abandon almost entirely the sowing of winter wheat, and that they then substituted spring wheat in its place, and have used it ever since: they believe it to be wholly exempt from the mildew or blight. In the neighbourhood of Horncastle, where I live, the land is either light or sandy, or composed chiefly of Norfolk marle, called in that neighbourhood white clay. Such sand, though tolerably productive of barley and grass seeds, is not to be compared with the rich and fertile tracts of South Holland; and yet the culture of spring wheat has of late years increased, and is now increasing fast, because the millers begin to understand its nature, and cease to undervalue it as they did at first.

The grain of spring wheat is considerably smaller than that of winter wheat; in colour it resembles red lammas so much, that it may be mixed with that grain, and this mixture will do no injury to the seller, as spring wheat weighs heavy, nor to the buyer, as it yields better at the mill than from its appearance might be expected; sixty pounds a bushel, is about its usual weight. Mr. Sers' of this year weigh-

ed six pounds, and he has sowed some mixed with less than half of red lammas, at the usual market price of the winter wheat of the last harvest, though the winter wheat is better in quality this year, and the spring worse than usual.

In the countries best acquainted with its culture, spring wheat is preferred to all other corn for raising a crop of grass seeds. This is owing to the small quantity of leaf it bears, less perhaps than any other corn, and to the short duration of the leaf, which fades and falls down almost as soon as it has attained its full size.

In cases where red wheat has been damaged by the wire worm, a mischief which seems of late years to have increased in this island, spring wheat appears to hold out an easy and simple remedy. In the first week of May the ravages of the worm have abated somewhat; if then the seed of spring wheat is at that time dibbled, or only raked with a garden rake into the naked spots left by the worm, though it will not attain the growth, at which the worm begins to prey upon, till he has changed his state for that of a winged beetle, it will certainly be ripe as soon as the winter wheat, and may be threshed out and sold with it; or if it is preferred, may be reaped separately, as the appearance of the ears, which in the Lincolnshire sort have longer beards or awns than the river or cone wheat, will point it out to the reapers in such a manner that no great error can happen in separating it from the lammas.

In years of scarcity this wheat offers a resource, which may occasionally be of the utmost importance to the community; of this the board were very sensible last spring, when they offered premiums for the increase of its culture, which have had the effect of rendering it much more generally known than otherwise would have been the case. The price of wheat seldom advances much, even in very scarce years, till a considerable portion of the crop has been thrashed out, and the yield of it by this means actually ascertained; but this does not take place till the seed-time of winter wheat is wholly over; no speculation, therefore, of sowing an increased quantity of that grain can be entered into during the first year of a scarcity; but before

the end of April, the question of the average yielded of the preceding crop will be generally known, and, when it is much below the usual proportion, there can be no doubt that a large quantity of spring wheat will be sown if the seed can be easily procured.

It is rather melancholy to reflect, that the progress of agricultural improvement has in some instances advanced in the inverse ratio of the utility of the novelty recommended to the public. Tobacco and potatoes reached Europe at much the same period; the time when Virginia was settled by Sir Walter Raleigh; but an ineffectual firmness was issued by the Great Mogul against the use of tobacco, long before potatoes were commonly cultivated in the garden of England; and that nauseous weed reached the furthest extremities of the Chinese Empire, and in spite of the obstacles placed by the Government of that country against the introduction of novelties of any kind, long before potatoes had occupied any extensive portion in the field-cultivation of this island.

Lest the revival of the culture of spring wheat, even under the liberal protection it has received from the Board, may be retarded from this principle, which seems to be inherent from the nature of mankind, it may be necessary to state here, that in the neighbourhood of Boston and Spalding, in Lincolnshire, the cultivation of it is now fully established, and likely to continue; from either of these places, therefore, the seed may at any future time, as well as at present, be obtained without difficulty; and as there is a water communication between these towns, and as Boston is a sea-port, it may always be brought to London, or any other maritime part of England, at a small charge.

In times when dearth recurs, which will occasionally happen as long as the manufacturing interest insist on keeping the price of corn, in a plentiful harvest, below the actual cost of growing it, speculations on the sowing of spring wheat, may be carried so far as to raise the price of seed, till a saving in it becomes a matter of political as well as of

economical importance; an experiment is therefore added, to show that spring wheat will succeed as well by dibbling as by broad-cast, made in the spring, of 1804.

Mr. Wm. Showler, an intelligent farmer near Rivesby, in Lincolnshire, dibbled four packs and a half of spring wheat on one acre and two roods of middling land, (being in the proportion of 5st. 2lb. to the Irish acre) which had borne turnips the winter before, and had no extraordinary preparation for this crop; the rows were eight inches asunder; the holes four inches asunder, and two inches deep; two grains were put into each hole.

The produce of the one acre and half, from the quantity of four and a half pecks of seed was seven quarters, viz. 5st. 2lb. of seed to the Irish acre, producing twelve barrels, 19st. 6lb. a fair crop, and as much at least as could have been expected from eighteen or twenty-one bushels, sown broadcast on the same land.

By a careful analysis in the wet way, conducted by Professor Davy, of the Royal Institution, the following results have been obtained from different kinds of wheat:

From	Insoluble. gluten starch parts
100parts of best Sicilian wheat	21—74— 5
do. Spring wheat of 1804,	—24—70— 6
do. good English wheat, 1803,	19—77— 4
do. blighted wheat of 1804,	—13—43—44

From this inferior analysis we may fairly deduce, that bread made of the flour of spring wheat is more nutritious than that made of winter wheat, because spring wheat contains a larger proportion of the gluten, or half animalised matter; and also that a miller ought not to deduct from the price of spring wheat more than two per cent, on the money price of winter wheat of the same weight, as the excess of the weight of insoluble matter, or bran, is no more than two per cent, when compared with good English wheat.

Bread made of spring wheat is rather less white than that made of the better sorts of winter wheat; but it is allowed to be more palatable in Lincolnshire, where it is best known....

Both these qualities are probably owing to the excess of gluten contained in it.

SPRING WHEAT.....BY MR. PETER SERS.

To the Hon. Board of Agriculture.

I most humbly beg to inform you, I have this year grown two hundred and forty-one acres of spring wheat, and a good crop, and expect four quarters per acre, except a part of it that is laid down for grass seeds, and on that I sow about nine pecks per acre, which I will venture to say has more than three quarters per acre, only on all our land we keep under plough, we sow fourteen pecks per acre. I have several sorts of soil, such as sandy, and very light earth, also mixed earth, and very strong clay, and it seems to suit every sort; and we sow from the 25th of March until the 4th of May; and the destructive worm, which has done me the greatest damage on my winter wheat, sown in autumn, which the worm takes when we only begin to sow our spring wheat, and it has not been hurt.

We sowed a deal last year, and not any of it hurt with the fatal mildew, which nearly destroyed the two hundred and fifty acres (one hundred and fifty-four Irish) of winter wheat, and by the help of our spring wheat, which was so good, we mixed it together, and greatly helped the sale. I have taken the liberty of sending Sir Joseph Banks samples both of last year and this, in the straw, &c. and I hope his honour will show you; and any further information I can offer to the honourable committee, will give me the greatest pleasure. From your most obedient and humble servant,

PETER SERS.

Gedney, Lincolnshire, Sept. 28, 1805.

This is to certify, that on the 20th of September, 1805, I finished measuring for Mr. Sers, of Gedney, two hundred and forty-one acres of spring wheat.

FRANCIS GRANT,
Surveyor, Long Sutton.

Mr. Sers' Letter to Joseph Banks, Bart.

I have, by the coach, sent your honour samples both of spring and winter wheat, of this year, 1805, now threshed, which your kindness will show to the Board; and of our large

quantity cannot see it is injured; it weighs as heavy as any red wheat we have grown. We have sold a short time back 200 qrs. (three hundred and fifty barrels Irish) to a merchant, mixed three-fourths spring wheat to one-fourth of red winter wheat, at full an average price with us of any quantity or quality sold in our markets to merchants; and we weighed several cooms, that is, four bushels, and they weighed seventeen stone and a half neat each, which is more than any wheat of mine has before weighed; though the corn is not large, is full, and goes close together. I fully think with you, that if winter wheat be damaged, it would be a good way to sow some spring wheat by a man about Lady-day, in the vacant places, and rake it in, as it is sure to be fit to cut with the winter wheat, and, when threshed together, no body can tell it.

For the Belfast Monthly Magazine.

ON CALORIC.

CALORIC, a name given by the late writers on chemistry, to that substance by which the phenomena of heat are produced, and which had before been denominated *igneous fluid, matter of heat, &c.* "There are, perhaps, few subjects," says an eminent writer, "respecting which a more remarkable versatility of general opinion, has been evinced, than with regard to the existence or non-existence of this principle. Are the physical effects of heat produced by the operation of a material fluid, *sui generis*, or is heat merely an affection of matter, consisting in internal vibrations and collisions of its particles, or in some other mode of corpuscular action of which we are ignorant, and is there consequently no such thing as caloric?" The materiality of heat appears to have been the most general opinion, till about the time that Lord Chancellor Bacon wrote his treatise, *De Forma Calidi*, where he considers "heat as the effect of an intestine motion, or mutual collision of the particles of the body heated; an expansive undulatory motion in the minute particles of the body, by which they tend, with some rapidity, towards the circumference, and at the same time incline a

little upwards." And this opinion has been adopted with various modifications by Descartes, Newton, Boyle, and almost all the mechanical philosophers of that and the succeeding ages.

The chemists, however, who were most conversant and best acquainted with the effects of this agent, seem to have still retained a strong notion of the materiality of heat, and in consequence of their daily improvements in chemical science, it became again the most prevailing theory; till lately, the experiments of Count Rumford, which, by endeavouring to prove, that heat is imponderable and capable of being produced *ad infinitum*, from a finite quantity of matter, have again thrown some doubt on the subject. It is a well-known fact, that when water freezes, it gives out such a portion of heat during its coagulation, that if it were imbibed by an equal quantity of water, at the temperature of 32° of Fahrenheit's thermometer, the latter would be heated to between 140° and 170°. Hence it would appear, that, if heat were a ponderable substance, a given quantity of water would become lighter when frozen in a vessel hermetically sealed. Count Rumford accordingly made this experiment by the help of a balance of extreme accuracy; but the result was, that the ice produced, appeared to be of precisely the same weight as the water had originally been, at the temperature of 61° viz. 4214.28 grains; from which he infers, that all attempts to discover any effect of heat on the apparent weights of bodies will be fruitless.

The following experiment was also made by the Count, to show the possibility of producing an infinite supply of heat, from a finite quantity of matter, viz. He caused a cylinder of brass to be turned 7½ inches in diameter, and 9.8 inches long, which was bored like a cannon with a calibre 3.7 inches in diameter, and 7.2 deep, so that the bottom was 2.6 inches in thickness. The hollow cylinder contained 385½ cubic inches of brass, and weighed 113.13lbs. avoirdupoise. By means of the engine used for boring cannon in the arsenal of Munich, a blunt borer or flat piece of hardened steel, 4 inches long, 0.63 inches thick, and 3½ inches